Idaho National Engineering & Environmental Laboratory
Bechtel BWXT Idaho LLC.

AUTODIALER

Summary:
The OU 1-07B Groundwater Treatment Facility (GWTF) autodialer is a circuit that is designed to use ordinary telephone lines to transmit an alarm signal to a remote operator. The autodialer will automatically contact the OU 1-07B GWTF operator when water properties move outside of specific bounds that will be set by the operator. Deployment of the autodialer will help to save costs by minimizing unnecessary monitoring of the GWTF system. It is estimated that the autodialer will eliminate one operator visit to the facility per week. If each visit took 1 hour to complete and the operator earned a burdened rate of $70 per hour, deployment of the autodialer would save approximately $3,500 per year or $105,000 over 30 years of operation. Subtracting the $6,000 cost of the instrument leaves a $99,000 total savings.

This deployment helps satisfy STCG need 6.1.02 (Real Time Field Instrumentation for Characterization and Monitoring Soils and Groundwater).

Qualitative Benefit Analysis		
Programmatic Risk	◒	Before implementation of the autodialer, no monitoring of the facility took place if operators were not present. Once installed, the autodialer will allow the project continuous surveillance of upset conditions at the facility. Implementation provides operators the ability to respond to an upset condition much more quickly.
Technical Adequacy	●	The autodialer is a proven technology and will perform as anticipated. As a result, it will be capable of meeting the project's need to maintain surveillance of the operating unit. Constant surveillance is now possible with implementation of the autodialer.
Safety	◒	A reduction in the number of visits to the GWTF will provide a slight benefit to safety in that less miles are travelled and less time is spent in a vehicle.
Schedule Impact	◒	No milestones are impacted through the use of this tool. Unnecessary visits to the GWTF are avoided. It is estimated that the autodialer will eliminate one operator visit to the facility per week. If each visit took 1 hour to complete, then that would be 50 hours per year avoided and 1500 hours over the 30-year life of the facility.

●	◒	○	◓	◉

Major Improvement	Some Improvement	No Change	Somewhat Worse	Major Decline

Quantitative Benefit Analysis	
Cost Impact Analysis	Cost savings are achieved by eliminating unnecessary visits to check on parameters at the GWTF. If each visit took 1 hour to complete and the operator earned a burdened rate of $70 per hour, deployment of the autodialer would save approximately $3500 per year or $105,000 over 30 years of operation. Annual Savings $3,500 Life-Cycle Cost Savings $99,000 Return-On-Investment (ROI) 55%

Worksheet 1: Operating & Maintenance Annual Recurring Costs

Expense Cost Items *	Before (B) Annual Costs	After (A) Annual Costs
1. Equipment	$ -	$ -
2. Purchased Raw Materials and Supplies	$ -	$ -
3. Process Operation Costs:		
Utility Costs	$ -	$ -
Labor Costs	$ 3,500.00	$ -
Routine Maintenance Costs for Processes	$ -	$ -
Subtotal	$ 3,500.00	$ -
4. PPE and Related Health/Safety/Supply Costs	$ -	$ -
5. Waste Management Costs:		
Waste Container Costs	$ -	$ -
Treatment/Storage/Disposal Costs	$ -	$ -
Inspection/Compliance Costs	$ -	$ -
Subtotal	$ -	$ -
6. Recycling Costs		
Material Collection/Separation/Preparation Costs:		
a) Material and Supply Costs	$ -	$ -
b) Operations and Maintenance Labor Costs	$ -	$ -
Vendor Costs for Recycling	$ -	$ -
Subtotal	$ -	$ -
7. Administrative/other Costs	$ -	$ -
Total Annual Cost:	$ 3,500.00	$ -

* See attached Supporting Data and Calculations.

Worksheet 2: Itemized Project Funding Requirements*
(i.e., One Time Implementation Costs)

Category	Cost $
INITIAL CAPITAL INVESTMENT	
1. Design	$ -
2. Purchase	$ 6,000
3. Installation	$ -
4. Other Capital Investment (explain)	$ -
Subtotal: Capital Investment= (C)	$ 6,000
INSTALLATION OPERATING EXPENSES	
1. Planning/Procedure Development	$ -
2. Training	$ -
3. Miscellaneous Supplies	$ -
4. Startup/testing	$ -
5. Readiness Reviews/Management Assessment/Administrative Costs	$ -
6. Other Installation Operating Expenses (explain)	$ -
Subtotal: Installation Operating Expense = (E)	$ -
7. All company adders (G & A/PHMC Fee, MPR, GFS, Overhead, taxes, etc.)(if not contained in above items)	$ -
Total Project Funding Requirements=(C + E)	$ 6,000
Useful Project Life = (L) 30 Years Time to Implem 0 Months	
Estimated Project Termination/Disassembly Cost (if applicable) = (D) (Only for Projects where L<5 years; D=0 if L>5 years)	$ -

TOTAL LIFE-CYCLE COST SAVINGS CALCULATION FOR IPABS-IS

(Before - After) x (Useful Life) - (Total Project Funding Requirements + Termination)

Total Life Cycle Cost Savings Estimate = (B - A) x L - (C+E+D) $ 99,000

RETURN ON INVESTMENT CALCULATION

Return on Investment (ROI) % =

$$\frac{\textit{(Before - After) - [(Total Project Funding Requirements + Termination)/Useful Life]}}{\textit{[Total Project Funding Requirements + Project Termination]}} \times 100$$

$$\text{ROI} = \frac{\text{(B-A)-[(C+E+D)/L}}{\text{(C+E+D)}} \times 100 \quad 55 \quad \%$$

O&M Annual Recurring Costs:				Project Funding Requirements:			
Annual Costs, Before=	$	3,500	(B)	Capital Investment=	$	6,000	(C)
Annual Costs, After=	$	-	(A)	Installation Op. Exp=	$	-	(E)
Net Annual Savings=	$	3,500	(B-A)	Total Project Funds=	$	6,000	(C+E)

Note: Before (B) and After (A) are Operating & Maintenance Annual Recurring Costs from Worksheet 1.

SCIENCE AND TECHNOLOGY BENEFIT ANALYSIS
DEPLOYMENT APPROVALS

Technology Deployed: GROUNDWATER TREATMENT FACILITY AUTODIALER

Date Deployed: 12/15/00

EM Program(s) Impacted: Environmental Restoration Program

Approval Signatures

[signature] 8/21/01

Contractor Program Manager Date

N/A

Contractor Program Manager Date

[signature] 8/23/01

DOE-ID Program Manager Date

N/A

DOE-ID Program Manager Date